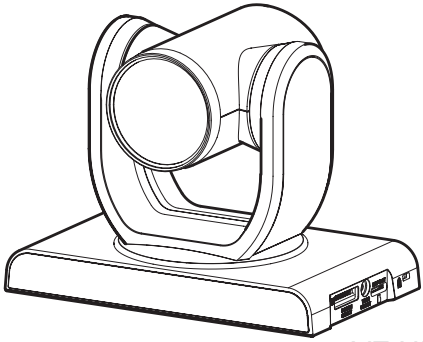
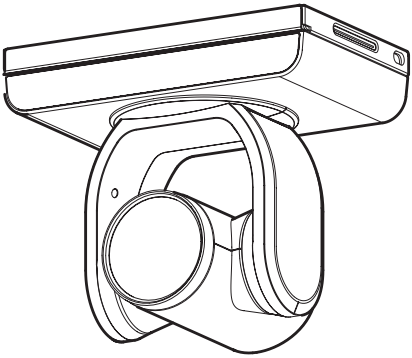
User's Manual

HITACHI
Inspire the Next

VZ-HD3600A
VZ-HD3650A
VZ-HD3700A
VZ-HD3780A



VZ-HD3600A
VZ-HD3650A
VZ-HD3700A



VZ-HD3780A

Introduction

Installation and Connection

Direct Remote Control Function

Configuration via Menus Function

Appendix

Thank you for purchasing this Hitachi camera.
Please read this User's Manual thoroughly and use the camera as instructed.
After reading the User's Manual, store it safely.

Important Information

For Your Safety

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

The camera and AC adapter have the following caution marks.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT OPEN. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Identifications of caution marks

This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully to avoid any problems.

IMPORTANT SAFETY INSTRUCTIONS

In addition to the careful attention devoted to quality standards in the manufacture of your camera, safety is a major factor in the design of every instrument. But, safety is your responsibility too. This page lists important information that will help to assure your enjoyment and proper use of the camera and accessory equipment.

1 Read these instructions.

2 Store these instructions for convenient accessibility.

3 Heed all warnings.

4 Observe all instructions.

5 Do not use the camera near water.

6 Clean the camera using only a dry cloth.

7 Do not block any ventilation openings. The camera should be placed in accordance with the manufacturer's instructions.

8 Do not place the camera near heat sources such as radiators, heat-registering areas, stoves, or other heat-generating apparatus (including amplifiers).

9 Protect the power cable and cord from being stepped on or pinched, particularly at the plugs, power outlets, and where it connects to the camera.

10 Only use the attachments and accessories specified by the manufacturer.

11 Use the camera only with a cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the camera. When using a cart to move the camera, use caution to avoid injury from tip-over.

S3125A

12 Unplug the camera during lightning storms or when unused for long periods of time.

13 Refer all servicing to qualified servicing personnel. Servicing is required if the camera is damaged in any way, such as if the power cable, cord, or plug is damaged, liquid is spilled or foreign objects fall onto the camera, or if the camera is exposed to rain or moisture, does not operate normally, or is dropped.

14 Do not drip or splash liquids onto the camera or place the camera near objects filled with liquid such as vases.

15 Use the equipment (AC adapter) near a power outlet with easy accessibility.

Cautions on Use of this Product
- Be sure to read this information -

● **Cautions on use**

Do not subject the camera to impact.

• This camera is a precision machine. Take great care that you do not strike it against a hard object or let it fall.

Do not point directly at the sun.

• If direct sunlight strikes the lens, the camera could malfunction or a fire could occur.

No sand or dust!

• If sand or dust gets inside the camera or the AC adapter, it may cause damage and/or malfunction.

Heat on surface of product

• The surfaces of the camera and AC adapter will be slightly warm, but this does not indicate a fault.

Be careful of ambient temperature.

• If the temperature of this camera is too high or too low, normal image output may not be possible.

Be careful of moisture condensation.

• When you move the camera between places where the difference in temperatures is great condensation (vapor in air warmed or cooled to water droplets) could occur on the lens and/or inside the camera. If condensation occurs on the lens, wipe it off with a soft, dry cloth. Even if the external surface of camera has dried, condensation may remain inside. Therefore, turn the camera off and leave it in a dry place for at least 1–2 hours before using it again.

Do not use the camera near strong radio waves or magnetism.

• If the camera is used near strong radio waves or magnetism, such as a radio wave tower or electric appliances, noise may be present in the picture and the camera may not operate normally.
At worst the camera could malfunction.

● **Cautions on Storage**

Do not store the camera in a very humid or dusty place.

- If dust gets inside the camera, it may malfunction. Under high humidity, the lens may become moldy, and the camera could become inoperable. We recommend storing the camera in a box with dessicant when storing in a closet, etc.

Do not store the camera in a place subject to strong magnetism or intense vibrations.

- This could cause malfunctions.

● **Cleaning**

Be sure to turn the power off before cleaning the camera.

Cleaning the lens

- Wipe dirt off the lens with a soft, dry cloth.

Cleaning the surface of the camera

- Use soft cloth to gently wipe dirt off the surface of the camera.

Do not use benzene or thinner to clean the surface of the camera.

- The coating of the case could peel off or the case could deteriorate. Wipe off dirt on the case with a dry soft cloth which has been completely wrung out. When using a chemical cleaning cloth, follow instructions for use.

● **Warnings about Transport**

- This camera is a precision device. Transporting the device without using the packing materials we specify may cause damage to it. If you wish to transport it again, please use the packing box it was shipped in.

● **Disposal of Batteries**

- When disposing of batteries, insulate them from each other, such as by putting Electrical tape on their terminals, and then dispose of them at a designated location. If you dispose of them with any other conductive things, such as pieces of metal, it may cause them to short and result in a fire or explosion.

Regulatory Notice

FCC Statement Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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Features

■ Equipped with a High Resolution HD CMOS Image Sensor

As it is equipped with a Hi-Vision 1/2.8 type 2 megapixel CMOS image sensor, the camera can shoot in Hi-Vision.

■ Optical 10x Zoom (40x with Digital Zoom)

The zoom lens has a horizontal FOV angle ranging from 7.8° at Wide to 70° at Tele, allowing it to shoot over a wide range, from wide-angle to telephoto. Its digital zoom function lets it take telephoto shots at 40x.

■ Multiple Video Output Interfaces

The VZ-HD3600A has a DVI-I (VIDEO OUT) terminal and supports both digital and analog output.
The VZ-HD3650A has an HD-SDI (High Definition Serial Digital Interface)* output, suitable for long distance transmission.
The VZ-HD3700/3780A has both DVI-I and HD-SDI* terminals.
*SMPTE292M standard compliant serial digital interface.

■ Pan / Tilt Mechanism

A direct drive motor powers the pan/tilt mechanism, which allows quick and quiet pan/tilt operation.

■ Equipped with 32 Presets

The system can remember multiple configurations, such as pan, tilt and zoom positions, as well as various camera function settings. Up to 32 presets can be saved and recalled using the remote control, or up to 127 presets when using the external control function.

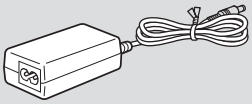
■ External Control Function

Various camera functions can be controlled externally via a serial interface, either an RS-232C or for long distance connection, an RS-422.

Checking Accessories

After you open the package be sure to check that the following accessories are inside.

AC adapter

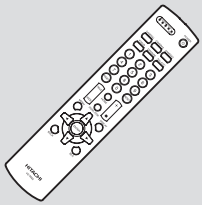


Connects to the camera.

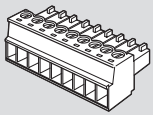
Power cord

Connects the AC adapter to an outlet.

Remote control

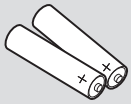


RS-422 terminal block connector



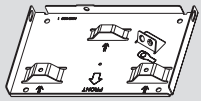
Used to make a connection cable when using RS-422.

Two AAA batteries

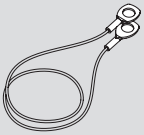


For the remote control.

Ceiling mount fixture (VZ-HD3780A only)



Safety wire (VZ-HD3780A only)



Three M5 × 12 screws (VZ-HD3780A only)

Information on DVI-I and HD-SDI Cables

- DVI-I and HD-SDI cables do not come with the product. Please purchase them separately to match the specifications of your monitor or other external device. Refer to pages 23 and 24 for information on cable types. Alternatively, refer to page 65 for the terminal specifications for DVI-I cables.

Information on Serial Interface Cables

- An RS-232C cable do not come with the product. If you wish to use an RS-232C cable and control the camera via an external device, purchase an RS-232C cable that conforms to the terminal specifications on page 66.
- If you wish to use an RS-422 cable, use the included RS-422 terminal block connector and make connection cables. When making cables, refer to the wiring diagrams on page 66 for pin layout and page 67 for the wiring diagram of RS-422 cables. Also, refer to page 68 for how to use RS-422 terminal block connector.

■ Getting the Remote Control Ready

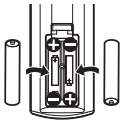
Caution

Warnings about Using Dry Cell Batteries

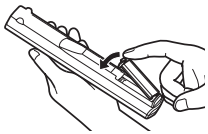
- Do not use any batteries in this device except those specified. Also, do not mix old and new batteries. Doing so may cause fire or injury due to the batteries exploding or leaking.
- Load the batteries as indicated on the device and make sure they are facing correctly in terms of polarity. Incorrect polarity may result in injury or staining of the surrounding area due to the batteries exploding or leaking.

1 **Remove the battery-chamber lid**
Open the lid by pressing in the direction of the arrow.

2 **Insert the batteries**
Insert the included AAA batteries with (+)(-) as indicated.



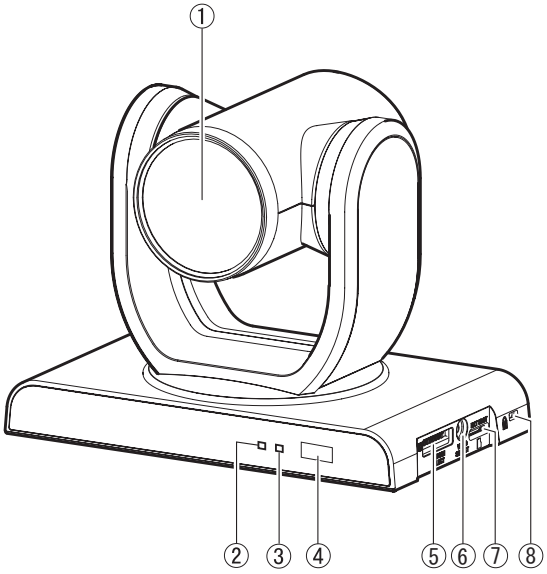
3 **Close the battery-chamber lid**
Press in the direction of the arrow and put the lid back in place.



Names of Parts

The illustrations in this User's Manual are of the VZ-HD3700A.
VZ-HD3780A is similar in shape and form to VZ-HD3700A, but the orientation for installation and the printing are vertically inverted.
VZ-HD3600/3650A is similar in shape and form to VZ-HD3700A, but the backside terminal configuration is different.

Front / Side



① Lens

② POWER lamp (P. 27)

③ STANDBY lamp (P. 27)

④ Remote receiver / IR sensor (P. 27, 42)

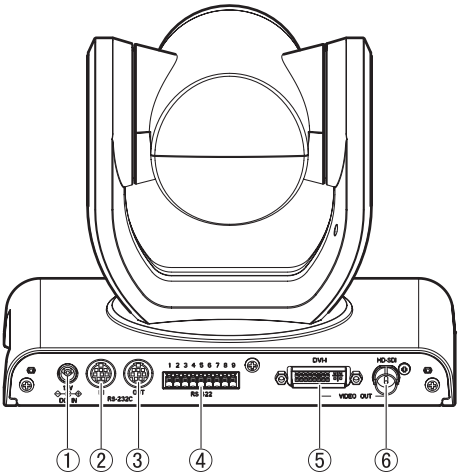
⑤ SYSTEM SELECT switch (P. 14)

⑥ VIDEO SELECT switch (P. 14)

⑦ EXT SLOT
This is an extension slot for maintenance and is not normally used.

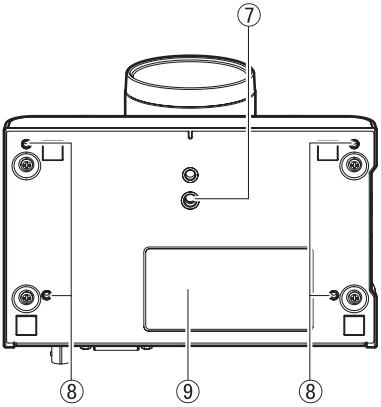
⑧ Anti-theft lock installation hole
Use a theft-prevention cable, sold separately.

Rear

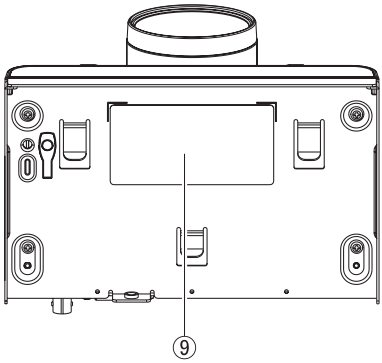


Base

VZ-HD3600/3650/3700A



VZ-HD3780A



① DC IN 12V terminal (P. 22)

② RS-232C IN terminal (P. 25)

③ RS-232C OUT terminal (P. 25)

④ RS-422 terminal (P. 25)

⑤ VIDEO OUT (DVI-I) terminal [VZ-HD3600/3700/3780A] (P. 24)

⑥ VIDEO OUT (HD-SDI) terminal [VZ-HD3650/3700/3780A] (P. 24)

⑦ Tripod mounting hole (P. 19)

⑧ Screw mounting holes (P. 19)

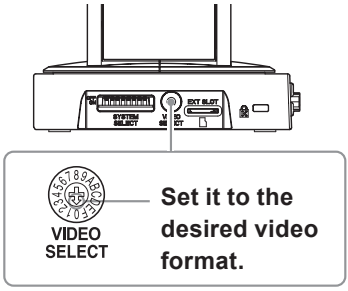
⑨ Rating label

Setting the VIDEO SELECT Switch

This switch allows you to select the video format of the signal to be output from the VIDEO OUT terminals.

Caution

- Be sure to set this switch before you turn on the camera. It can also be set when in the standby mode. (P. 27)
- Be sure to use a Phillips driver when changing the switch position.
  Using anything other than the designated screwdriver may damage the grooves.
- This camera does not have a function that automatically matches the video output signal to the connected monitor's resolution. Be sure to configure the setting so it matches the monitor's resolution.
- The Hi-Vision video signal outputs a distortion-free image on monitors with an 16:9 aspect ratio.



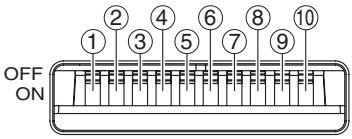
Switch position	Video output format
0*	1080i/59.94
1	1080p/59.94[VZ-HD3700/3780A]
2	720p/59.94
3	1080p/29.97
4	—
5	—
6	—
7	Serial control
8	1080i/50
9	1080p/50[VZ-HD3700/3780A]
A	720p/50
B	1080p/25
C	—
D	—
E	—
F	—

* This is the factory default setting.

Caution

- Model VZ-HD3600/3650A does not output 1080p/59.94 or 1080p/50.
- The HD-SDI output does not output 1080p/59.94 or 1080p/50.
- When the video output format is set to serial control (switch position 7), the video output format can be set using an external device; however, the video output format setting is reflected after the power is turned back on.

SYSTEM SELECT Switch Settings



SYSTEM SELECT

① Switch 1 (Serial communication baud rate switch)
OFF* : 9,600 bps
ON : 38,400 bps

② Switch 2 (IR OUT switch)
Allows the IR reception signal from the remote control to be output from the RS232C IN terminal.
OFF* : Disables output
ON : Enables output

③ Switch 3 (RS-232C/RS-422 switch)
OFF* : Comm via RS-232C
ON : Comm via RS-422

④ Switch 4 (Video OUT Sync switch) [VZ-HD3600/3700/3780A]
Switches the Sync signal on/off for analog video signal output. Set this to add a Sync signal, especially when not connected to Analog Horizontal Sync/Analog Vertical Sync.
OFF : Does not add Sync
ON* : Adds Sync

④ Switch 4 (Not used) [VZ-HD3650A]
Always set to ON*.

⑤ Switch 5 (Not used)
Always set to OFF*.

⑥ Switch 6 (Not used)
Always set to OFF*.

⑦ – ⑨ Switches 7-9 (remote code switch)
Allows you to select the remote control code (RC.1 to RC.3) to receive in cases such as when operating multiple cameras with the same remote, or to avoid interference from another remote control for a nearby camera. To prevent remote control operation (RC OFF), set to anything other than RC.1-RC.3.

	7 8 9	
RC.1*	■ ■ ■	OFF ON
RC.2	■ ■ ■	OFF ON
RC.3	■ ■ ■	OFF ON
RC OFF	OTHERS	

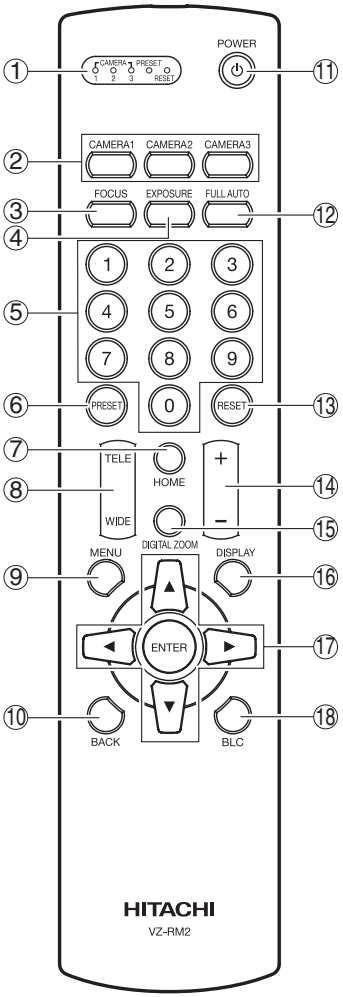
⑩ Switch 10 (Not used)
Always set to OFF*.

* This is the factory default setting.

Caution

- Make the settings for ① Serial communication baud rate ④ Video OUT Sync switch [VZ-HD3600/3700/3780A] prior to turning the camera on. Do not make these settings after turning the power on.
- When connecting devices in a daisy chain (P. 25), it is necessary to make the ① Serial communication baud rate and ③ RS-232C/RS-422 selections the same for all connected cameras.
- To change switch settings, use a slender slotted screwdriver.

Remote Control



① Indicators (P. 36)

② CAMERA SELECT Button (P. 27)

③ FOCUS Button (P. 30)

④ EXPOSURE Button (P. 33)

⑤ 10-key Buttons (for presets) (P. 35)

⑥ PRESET Button (P. 35)

⑦ HOME Button (P. 30)

⑧ TELE / WIDE Buttons (P. 30)

⑨ MENU Button (P. 37)

⑩ BACK Button (P. 38)

⑪ POWER Button (P. 27)

⑫ FULL AUTO Button (P. 34)

⑬ RESET Button (P. 35)

⑭ + / - Buttons (P. 32)

⑮ DIGITAL ZOOM Button (P. 31)

⑯ DISPLAY Button (P. 28)

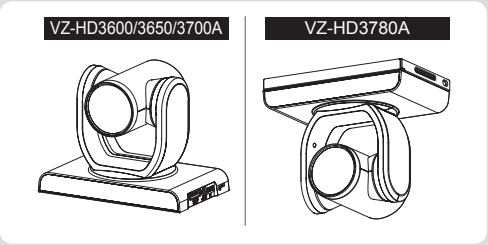
⑰ <//∧/∨ Cursor Buttons / ENTER Button (P. 30, 35, 38)

⑱ BLC (Backlight compensation) Button (P. 34)

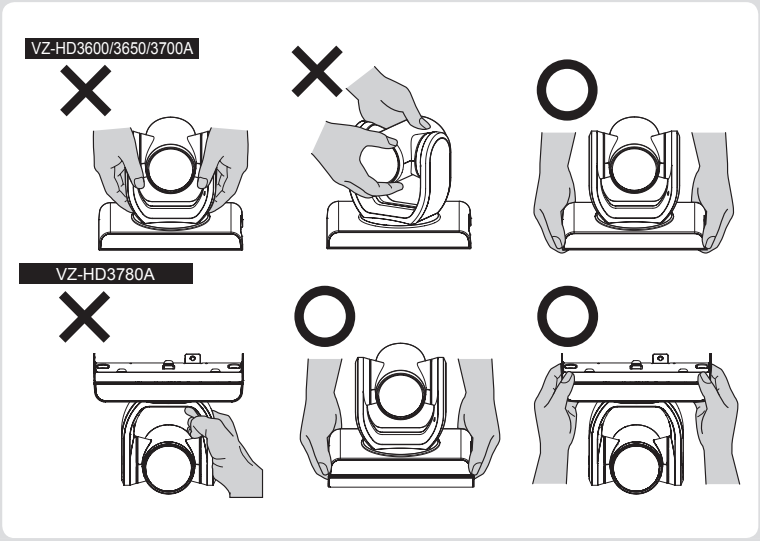
Installation

Caution

- During installation, take steps as needed to prevent the camera from falling.
- Install the camera so it is level.
- Install it in a normal orientation.



- When moving the camera, carry it by its base.
  Do not carry it by the camera itself. Doing so may cause a malfunction.
- Do not apply force to the camera, such as by trying to make it pan or tilt manually. Doing so may cause a malfunction.



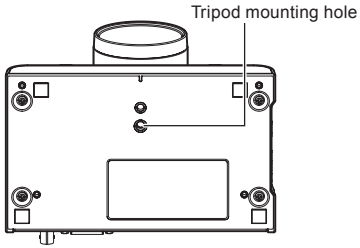
■ Installing it on a Desk or Table VZ-HD3600/3650/3700A

Install it in a stable location where it is unlikely to fall off.

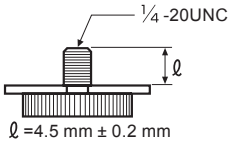
■ Mounting on a Tripod (Sold Separately)

VZ-HD3600/3650/3700A

Attach the tripod to the tripod mounting hole on the base of the camera.
Tighten the screw securely by hand.



Standard size of usable tripod mounting screw



Caution

Set up the tripod according to its user's manual so it is steady and will not fall over.

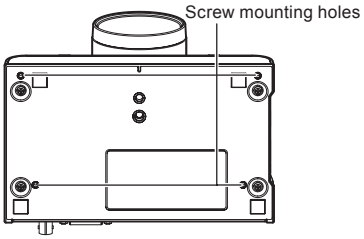
⚠ Warning

Do not mount the camera using the tripod screw when installing it in a high place.

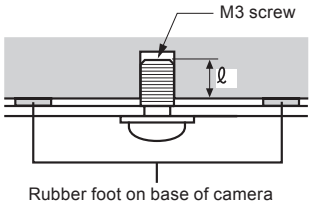
■ Install with Mounting Screws (Sold Separately)

VZ-HD3600/3650/3700A

Install mounting screws in the four screw mounting holes on the base.
Tighten the 4 screws securely.



Standard size of mounting screws



ℓ = 3 mm to 4 mm

■ Ceiling Installation

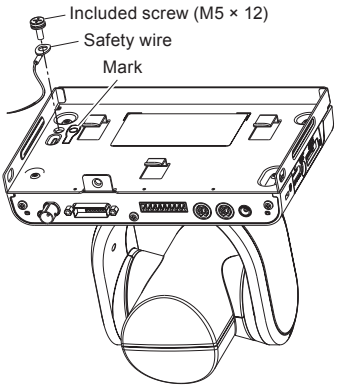
VZ-HD3780A

Use the included ceiling mount fixture, along with the safety wire and screws when mounting the camera on the ceiling.

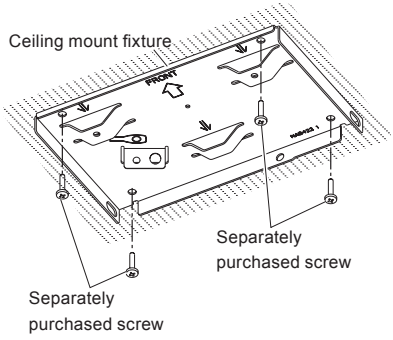
⚠ Warning

- To mount the camera in a high place, such as on the ceiling, have an installer specialized in such construction do the work.
- When mounting the camera in a high place, make sure the location it will be mounted and the materials used for mounting it (other than the included fixture, etc.) are strong enough to support a weight of at least 20kg and then mount the camera securely. If materials are not strong enough, it may fall and cause an injury.
- To prevent it from falling, be sure to attach the safety wire.
- Take all due care to prevent the camera from falling during installation.
- If installed in a high place, inspect once a year to make sure the mount has not become loose. Make more frequent inspections if the conditions of use call for it.

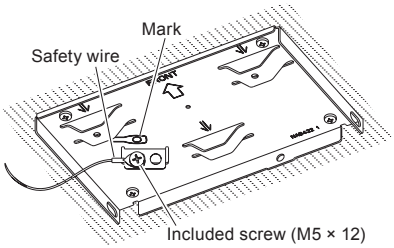
1 Be sure to attach the safety wire of the camera with the included screw (M5 × 12).
Install the mounting hardware as indicated by the mark.



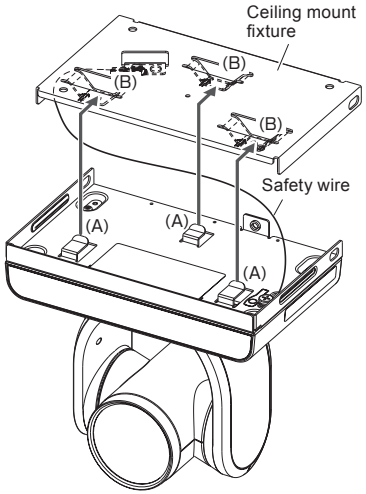
2 Mount the ceiling mount fixture to the ceiling.
Use screws that fit in the screw hole of the ceiling mount fixture. (not included)
To prevent them from loosening, use a flat or spring washer as needed.



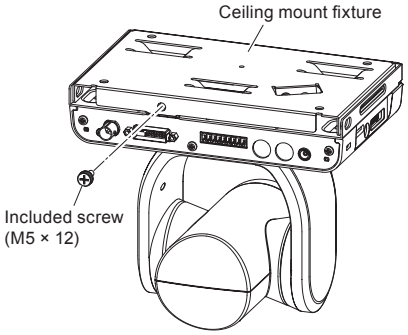
3 Attach the other end of the safety wire you attached to the camera in step 1 to the ceiling mount fixture with the included screw (M5 × 12).
Install the mounting hardware as indicated by the mark.



4 Align the tabs (A) sticking up on the base of the camera with ceiling mount fixture's holes (B) and slide in so they are held in position.
Tuck the extra length of the safety wire inside the ceiling mount fixture.



5 Fasten the camera to the ceiling mount fixture with the included screw (M5 × 12) from the rear of the camera.

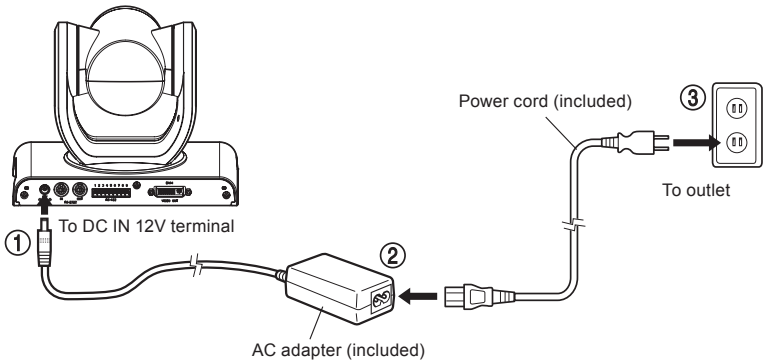


Connections

■ Connecting to an Electrical Outlet

Follow the steps below to connect the camera to an electrical outlet via the included AC adapter and power cord.

① Connect the wire from the AC adapter to the DC IN 12V terminal on the camera.
② Connect the power cord to the AC adapter.
③ Plug the power cord into the outlet.

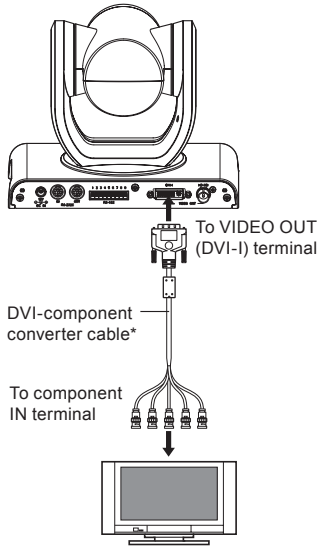


Caution

- When the power is plugged in, the head of the camera will first start to move. Plug the power cord in after the device is installed.
- Do not use any power cord or AC adapter other than those provided.
- This device does not have a power switch.
- When installing the device, either install a dedicated switch that is hardwired and easily accessible or plug the power cord into a device that is near the outlet and can easily be unplugged/plugged in during use.
  If something abnormal should happen, either turn off the dedicated switch or unplug the power cord.

■ Connecting to a Monitor with an Analog Component IN Terminal

VZ-HD3600/3700/3780A

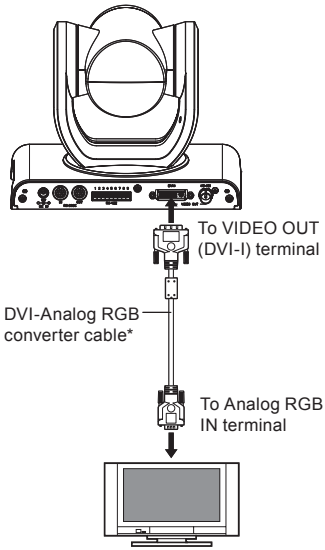


* See P. 65 for terminal specifications.

Set to the video output format (P. 14), output format (P. 46) or Sync signal (P. 15) of the analog video signal output, according to the specifications of the connected monitor or external device.

■ Connecting to a Monitor with an Analog RGB IN Terminal

VZ-HD3600/3700/3780A

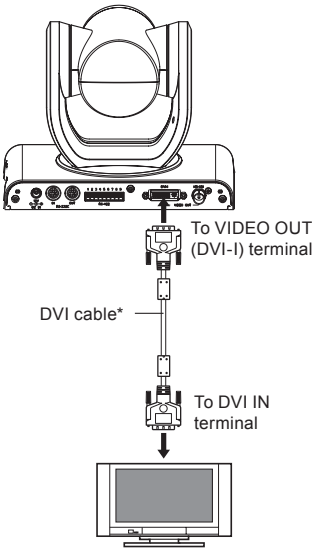


* See P. 65 for terminal specifications.

Set to the video output format (P. 14), output format (P. 46) or Sync signal (P. 15) of the analog video signal output, according to the specifications of the connected monitor or external device.

■ Connecting to a Monitor with a DVI IN Terminal

VZ-HD3600/3700/3780A

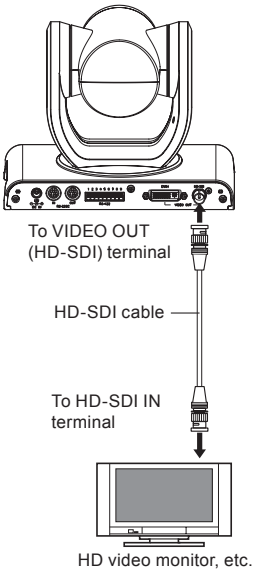


* See P. 65 for terminal specifications.

Set to the video output format (P. 14), output format (P. 46) or Sync signal (P. 15) of the analog video signal output, according to the specifications of the connected monitor or external device.

■ Connecting to a Monitor with an HD-SDI IN Terminal

VZ-HD3650/3700/3780A



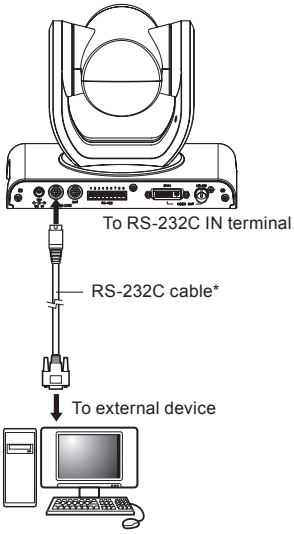
Set the video output format (P. 14) according to the specifications of the connected monitor or external device.

* Note that HD-SDI output is not output at 1080p/59.94 or 1080p/50.
  Also, regardless of the output format (P. 46) setting, the HD-SDI output will be YPbPr.

■ Connecting to an External Device with an RS-232C

- Use an RS-232C to connect the camera for control via an external device.

1 Connect as follows with an RS-232C cable.



* See P. 65 for terminal specifications.

2 Select SYSTEM SELECT SWITCH 1 (serial communication baud rate) for the connected external device and set SYSTEM SELECT SWTICH 3 (RS-232C/RS-422) to RS-232C.
See P. 15 for how to make settings.

■ Connecting Multiple Cameras to an External Device

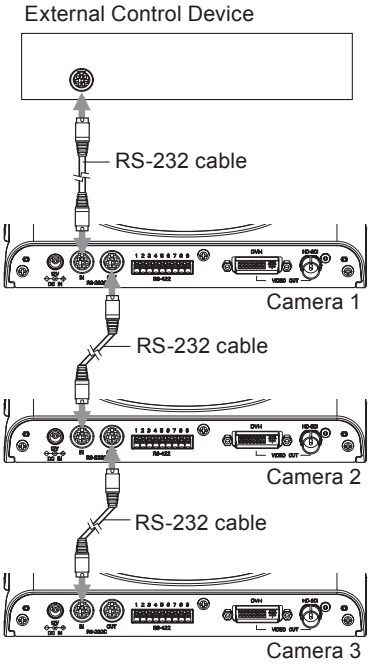
- To control more than one camera with an external device via RS-232C or RS-422 cables, connect them in a daisy chain.

1 Using RS-232C or RS-422 cables, make the connections as shown in the figures on P. 26.

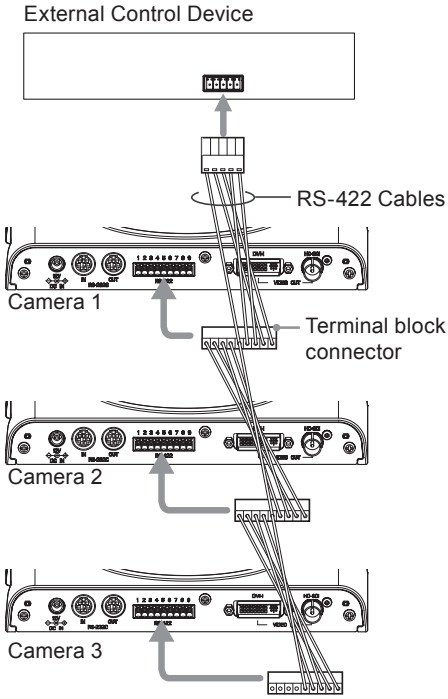
2 To make connections with RS-422 cables, use the included RS-422 terminal block connector and make connection cables. When making cables, refer to the wiring diagrams on P. 63 for pin layout and P. 64 for the wiring diagram for RS-422 cables.
Also, refer to P. 65 for how to use RS-422 terminal block connectors.

3 Select SYSTEM SELECT SWITCH 1 (serial communication baud rate) for the connected external device and select SYSTEM SELECT SWTICH 3 (RS-232C/RS-422).
See P. 16 for how to make settings.

Connecting with RS-232C Cables



Connecting with RS-422 Cables



Caution

- When connecting devices in a daisy chain, it is necessary to make the selections the same for all the connected cameras, namely the SYSTEM SELECT SWITCH 1 (serial communication baud rate) and SYSTEM SELECT SWITCH 3 (RS-232C/RS-422).
- Make the switch settings before turning the device on. Turn the power on after making switch settings (P. 27).
- To change SYSTEM SELECT SWITCH settings, use a slender slotted screwdriver.
- Do not set the switches to anything other than as instructed. Doing so may cause a malfunction.

Before Use

- This chapter describes the functions that can operate the camera directly via remote control. Refer to P. 37 for functions that use menu screens.
- Remote control buttons are indicated as [Button Name]. For example, [POWER] refers to the power button on the remote control.
- When using the remote control, point it at the remote control receiver (P. 12) on the camera.

■ Selecting Remote Control Codes

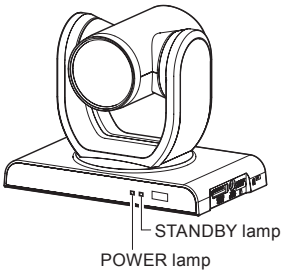
1 **Setting the camera's remote control codes**
Set the remote control codes with the SYSTEM SELECT Switches ⑦ – ⑨ (remote control code selections) (P. 15).

2 **Press the camera selection button (CAMERA*) on the remote control and operate the designated camera**

Ex.: To operate CAMERA1, set the SYSTEM SELECT Switches to ⑦ON, ⑧OFF, ⑨OFF:RC1.

Refer to "Remote Control Indicators" on P. 36 for the meaning of lighted remote control indicators.

Turning the Power ON



1 **Press [POWER] on the remote control**
The power comes on. (The POWER lamp lights and the STANDBY lamp goes off)
The camera automatically goes through pan and tilt movements and then returns to the home position.

2 **Turn on the devices connected to the camera**

Hint

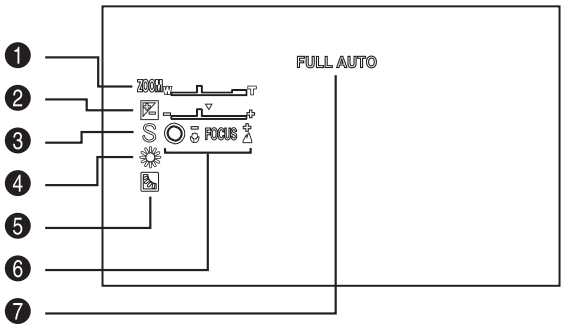
When the POWER lamp is lit, pressing [POWER] shifts it into standby mode.
(The POWER lamp goes out and the STANDBY lamp lights)
If you press [POWER] again, the power comes back on.

Caution

When the power is plugged in, the head of the camera will first start to move.

Screen Display

If you press [DISPLAY], the current settings of camera functions and zoom operations, etc., are displayed as in the following example.
If you press [DISPLAY] again, the display turns off.

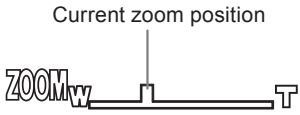


Function		Direct Remote Control Operation	Menu Operation
❶	Zoom	● (P. 30)	
❷	Exposure	● (P. 33)	
❸	Program AE		● (P. 39)
❹	White Balance		● (P. 41)
❺	BLC (Backlight compensation)	● (P. 34)	
❻	Manual Focus	● (P. 31)	
❼	Full Auto	● (P. 34)	

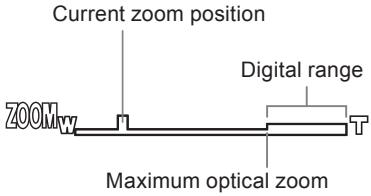
*Screenshot for explanation purposes. Actual displays will differ.

Following are displays of settings that can be made for different functions, shown by setting content.
(Default content shown first)

❶ Zoom



Digital Zoom: Off



Digital Zoom (40x): On

❷ Exposure

No icon: Auto

Manual

❸ Program AE

No icon: Auto

M : Manual

S : Shutter

Iris : Iris

: Spotlight

: White Board

❹ White Balance

No icon: Auto

MWB : Manual

: Set

: Outdoor

: Indoor1

: Indoor2

❺ BLC (Backlight compensation)

No icon: Off

: On

❻ Manual Focus

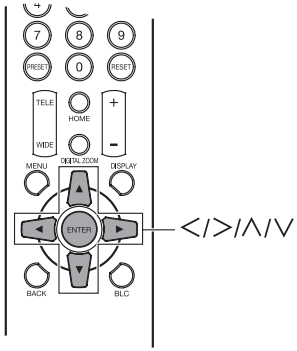
No icon: Auto

FOCUS : Manual

Panning, Tilting and Zooming

■ Panning and Tilting

Pans or tilts, thus adjusting the orientation of the camera.



</>/∧/∨

1

While looking at the screen, press the [< / > / ∧ / ∨] buttons to pan and tilt the camera

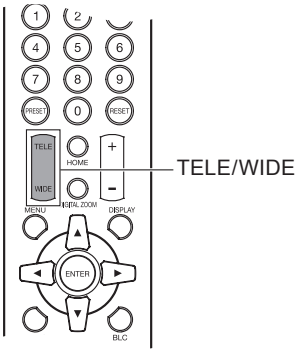
- Press buttons quickly to make slight movements or press long to make long ones.
- The camera cannot be panned or tilted while a menu is displayed.

To return the camera to its normal orientation (home position)

press [HOME].

■ Zooming

The camera can zoom up to 10x optically or 40x digitally.
(The digital zoom function is Off when purchased.)



TELE/WIDE

1

While viewing the screen press [TELE] or [WIDE]

- To zoom in and make the subject appear larger, press [TELE]; to show a wider range, press [WIDE].

Turning the Digital Zoom On/Off

Press [DIGITAL ZOOM] repeatedly to turn it On/Off.
The digital zoom function can also be turned On/Off using menus. (P. 43)

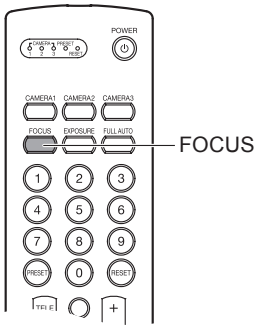
Caution

- When operating zoom, the focus may blur for a moment.
- When digital zoom is added, the image quality will become coarser.

Adjusting the Camera

■ Adjusting the Focus Manually (Manual Focus)

If it is difficult to adjust the focus automatically, you can adjust it manually.



1 **Press [FOCUS]**
It changes to manual focus mode.

2 **Press [+] or [-] to adjust the focus**

- To focus on a distant subject, press [+] and to focus on a near subject, press [-].

To Revert to Auto Focus

Press [FOCUS] again to return to auto focus.

Focusing range

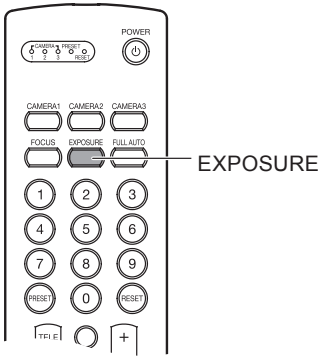
- T (telephoto) side: Approx. 47 cm from the lens surface to infinity.
- W (wide-angle) side: Approx. 1 cm from the lens surface to infinity.

Hint

- When focusing manually, start with the subject zoomed in (Press [TELE] to take it to the T side).
  This prevents blurred images when you switch to wide-angle zooming.
- If you wish to adjust exposure while focusing manually, press [EXPOSURE]. The exposure bar lights in orange.
  To return to manual focusing, press [FOCUS].
- Auto Focus may not perform well on subjects if:
  Subjects are not in the center of the frame, both near and far subjects are within the auto focus bracket at the same time, subjects are moving rapidly, subjects are dark or low in contrast, etc.

■ Adjusting the Brightness of the Image (Exposure)

Normally, the exposure is automatically adjusted. However, depending on the shooting conditions, the exposure can be adjusted manually.



1 **Press [EXPOSURE]**

2 **Press [+] or [-] to adjust the exposure**

Hint

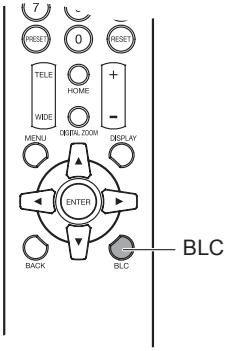
If you wish to adjust focus manually while adjusting exposure, press [FOCUS].
The manual focus icon lights in orange. (P. 32)
To return to exposure adjustment, press [EXPOSURE].

Caution

If the Program AE mode is set to [Manual], the results of adjusting the exposure are not reflected. When the Program AE mode is set to anything other than [Manual], the exposure adjustments are reflected.

■ Compensating for backlight

When the subject is lit from the rear, this function will compensate for lighting so that the subject is not too dark. (Backlight Compensation).



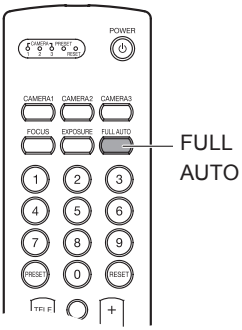
1 **Press [BLC]**
The image is backlight compensation.
- Pressing [BLC] again cancels backlight compensation.

Caution
If the Program AE mode is set to [Manual], the results of backlight compensation are not reflected. When the Program AE mode is set to anything other than [Manual], the results of backlight compensation are reflected.

■ Returning Changed Settings to their Defaults (Full Auto)

The following settings can be returned to their defaults with one button.

Function	Default	Refer to
Focus	Auto	P. 31
Exposure	Auto	P. 33
BLC (Backlight compensation)	Off	P. 34
Program AE	Auto	P. 39
White Balance	Auto	P. 41

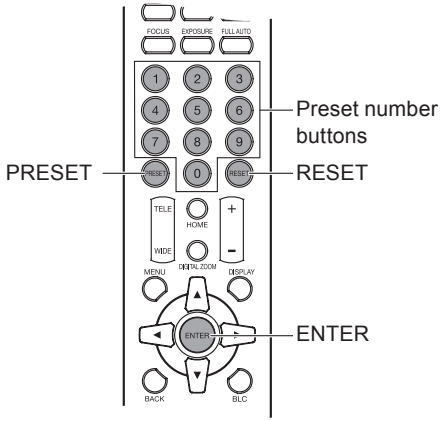


1 **Press [FULL AUTO]**
[FULL AUTO] is displayed onscreen for several seconds and the settings revert to their default.

Making Camera Presets

You can set up presets for different camera settings, such as its pan, tilt and zoom. Once presets are made, they are retained even if the power is turned off.

- Presets that can be accessed from the remote control can be made from 1 to 32.
  To use presets from 33 up, use the external control function.
- Once you save preset 1, whenever you turn the power on thereafter, the camera starts under preset 1 settings.
- To see what preset items can be made, refer to Preset Items and Retained Settings (P. 53).



1 **When the camera is in the state you wish to save, press [PRESET] and then press the number you wish to save (from [1] to [32])**

2 **Press [ENTER]**

To Call up a Camera Preset

Press the number of the preset ([1] to [32]) you wish to call up and then press [ENTER].

To Delete a Preset (Reset)

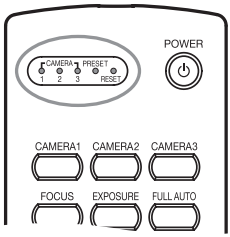
Press [RESET] and then the number of the preset ([1] to [32]) you wish to delete, and then press [ENTER].

Entering Numbers

For presets 1 to 9:
Simply press [1] to [9] on the remote control.
Ex.: For 3, simply press [3].
For presets 10 to 32:
Press the first digit and then the second.
Ex.: For 25, press [2] and then press [5].
If the range of movement for pan/tilt is limited by the swivel setting (P. 45), if you move to a pan/tilt position set up ahead of time, it will be within the limited movement range.

Remote Control Indicators

- Whenever you operate a camera via the remote control, the indicators of the configured camera numbers (CAMERA*) light up.
- While entering the number of the camera whose preset is being called up, the indicators of the configured camera numbers (CAMERA*) light up.
- When entering the number of a preset, the PRESET indicator and the indicator (CAMERA*) of the configured camera number light up.
- When entering the number to be reset, the (RESET) indicator and the indicator of the configured camera number (CAMERA*) light up.



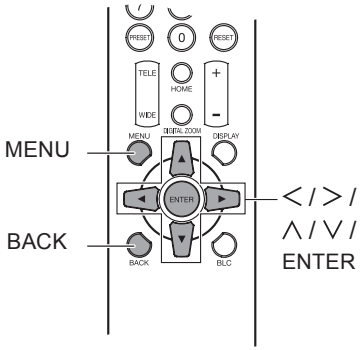
Caution

- While trying to save, call up or delete a camera preset, if you enter a number other than from [1] to [32], or if you press another button, and you leave the number entered as is without pressing [ENTER] for a certain period of time, the entry is disabled and the indicators (CAMERA*) of the camera numbers that had been configured with a (PRESET)/(RESET) go off. If this happens, start over what you were trying to do from the beginning.
- When saving a setting or deleting content, other preset numbers cannot be called up, set or deleted.
- While a menu is displayed (P. 37), presets cannot be called up, set or their content deleted. Close the menu and then perform the desired operation.

Operating Menus and Understanding Screens

With some functions, the camera can be operated via onscreen menus displayed on a monitor connected to the camera.

- Within explanation of procedures, menu items are indicated as being inside quotes.
- From P. 39 on, the explanations of operations that can be achieved using cursor buttons (< / > / ∧ / ∨) are simplified.

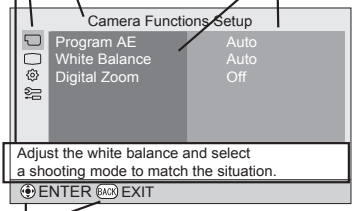


1

Press [MENU]
The menu opens.

Menu item on the top level, its icon and description

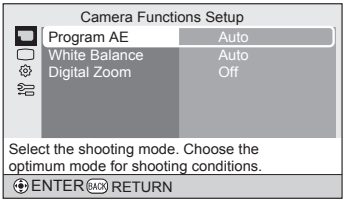
Menu items on the 2nd level, current setting



Remote control buttons that work on this screen

- To select another icon on the top level, press [∧] or [∨].

2 **Press [>] or [ENTER] to access menu selections on the 2nd level from the screen in step 1**

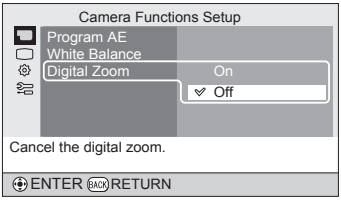


- To go back to selections on the top level, press [BACK] or [<].

3 **Press [∧] or [∨] and select the menu item of the setting you wish to change, and then press either [>] or [ENTER] to activate it.**

Setting items that can be selected for the chosen menu item are displayed.

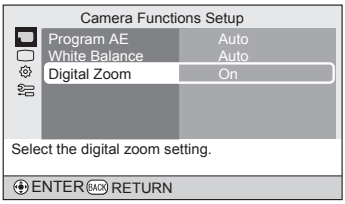
The sample screenshot is with Digital Zoom selected and activated



- To go back to menu selections on the 2nd level, press [BACK] or [<].

4 **Use [∧] or [∨] to select the desired setting and activate it with [ENTER]**

The sample screenshot depicts the Digital Zoom set to [On].



To close the menu midstream

Press [MENU].
In step 1, pressing [BACK] also closes the menu.

Camera Functions Setup

■ Selecting a Shooting Mode to Match the Conditions (Program AE)

You can also select a shooting mode that better suits the situation for even clearer images.

Program AE Mode

Auto (No icon appears.)
Automatically adjust the exposure.

Caution
A function to reduce flickering operates when in Auto mode. However, this reduction may not work, depending on the subject, lighting conditions, or the gain limit setting.
In such case, setting the shutter speed to 1/100 in the Shutter mode can reduce the flicker.

M Manual
The settings for sensitivity (gain), shutter speed, aperture (iris) are adjusted manually.

S Shutter
The shutter speed is adjusted manually.

Iris Iris
The aperture is adjusted manually.

Spotlight
When a strong light is on the subject, this prevents the person's face from washing out.

White Board
Provides the ideal exposure control for shooting a white board.

If you select a Program AE mode, new settings that can be made in the selected mode are displayed, from the following settings.

Gain
This sets the sensitivity when Manual is selected. Can be set in a range from 0 to 30dB (31 steps).

Shutter Speed
This sets the shutter speed when Manual or Shutter are selected. You can select from the values in the table below. The values that can be selected vary with the image output format.

59.94/29.97	50/25
1/10000	1/10000
1/6000	1/6000
1/4000	1/3500
1/3000	1/2500

59.94/29.97	50/25
1/2000	1/1750
1/1500	1/1250
1/1000	1/1000
1/725	1/600
1/500	1/425
1/350	1/300
1/250	1/215
1/180	1/150
1/125	1/120
1/100	1/100
1/90	1/75
1/60	1/50
1/30	1/25
1/15	1/12

Iris

This sets the aperture when Manual or Iris are selected. You can choose from among CLOSE, F26, F22, F19, F16, F14, F11, F9.6, F8.0, F6.8, F5.6, F4.8, F4.0, F3.4, F2.8, F2.4, F2.0, and F1.8.

Gain Limit

This sets the upper limit of sensitivity (gain) when Auto, Shutter, Iris, Spotlight or White Board are selected. It can be set in a range from 0 to 30dB (31 steps).

Slow Shutter

This sets the slow shutter speed when Auto is selected. When the image output format is 59.94/29.97, you can select from 1/60, 1/30 or 1/15. When the image output format is 50/25, you can select from 1/50, 1/25 or 1/12.

Aperture Limit

This sets the maximum amount the aperture can be opened when Auto is selected. You can choose from F2.8, F2.4, F2.0 and F1.8.

Selecting Program AE Modes

1	**Press [MENU]**
2	**Select [Camera Function Setup] ▶ [Program AE] ▶ Program AE mode**
3	**Use the [cursor buttons] to choose the setting value in the selected Program AE mode**
4	**Press [ENTER] to exit the [MENU]** The selected Program AE mode (excluding Auto) is displayed on screen (P. 28).

■ Setting the white balance

When you wish to adjust the color, you can change the white balance setting.

White balance mode

Auto (No icon appears.)

MWB Manual

Select values for the R gain (red gain) and the B gain (blue gain) to set the white balance. This can be set in a range from -128 to + 127 (256 steps)

Set

You can manually adjust white balance to match the light source or situation.

Outdoor

To shoot in fine weather.

Indoor 1

To shot under incandescent light, halogen light or soft fluorescent light.

Indoor 2

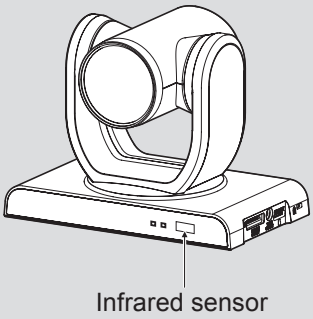
To shoot under bright fluorescent light.

Selecting a white balance mode

1. **Press [MENU]**
2. **Select [Camera Function Setup] ▶ [White Balance] ▶ white balance mode**
3. **Press [ENTER] to exit the [MENU]**

Caution

Do not block the infrared sensor with your hand or other things to obtain a good cast for your shooting.
Further, if the lens is not facing straight ahead, it may be difficult to get a good color balance.



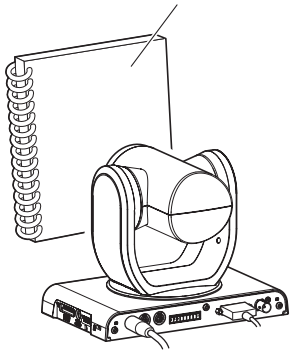
Infrared sensor

Setting the white balance manually (Set)

Prepare a white object such a thick sheet of white paper that is not translucent.

1. **Point the camcorder at the white object so that it fills the screen.**

Thick white paper, etc.



2. **Press [MENU]**
3. **Select [Camera Function Setup] ▶ [White Balance] ▶ [Set]**
   At this point, [ ] will start blinking on the screen.
4. **Press [ENTER]**
   After a short wait, the [ ] will stop blinking and remain lit to indicate that white balance settings are complete.

5 **To close, press [MENU]; to redo the process, go back to step 4 and repeat**

- The white balance configured in [Set] is saved until the next time it is configured.
- In order to match the coloring exactly, reconfigure [Set] every time the shooting conditions change.

Caution

- It may be difficult to perform this setting in dark places. Also if the zoom bar is positioned in the digital range (p. 29), you may not be able to set the white balance. If white balance settings cannot be accomplished, [] will continue to flash.
- If configuring [Set] is not completed and the power is turned off or a preset is saved, [] may flash on the screen. Repeat the procedure from step 1.

■ Turning the Digital Zoom On/Off

Although the digital zoom function can be turned On/Off using [Digital Zoom] (P. 31), it can also be done via the menu.

1 **Press [MENU]**

2 **Select [Camera Function Setup] ▶ [Digital Zoom] ▶ On/Off**

3 **Press [ENTER] to exit the [MENU]**

Image Setup

■ This sets the depth of color (Saturation)

This allows you to set the color level. It can be set in a range from 0 to 15 (16 steps).
The larger the setting value, the stronger the color.

■ Setting Outline Intensity (Enhancement)

This allows you to set the intensity of outline compensation for an image. It can be set in a range from 0 to 15 (16 steps).
The larger the setting value, the more distinct and emphasized the outline.

■ Setting the Black Level (Pedestal)

This allows you to set the black level of the image.
It can be set in a range from 0 to 79 (80 steps).
The smaller the setting value, the more intense the black level.

■ Setting the Gamma Level (Gamma)

This allows you to set the gamma level of the image.
It can be set in a range from 0 to 16 (17 steps).
The smaller the setting value, the more it corrects the brightness of the intermediate level to the brighter side.

■ Reducing Noise (NR Setup)

This allows you to reduce the level of noise in the image. It can be set in a range from 0 to 6 (7 steps).
The larger the setting value, the greater the noise reduction effect.

Selecting Different Settings in the Image Setup

1	**Press [MENU]**
2	**Select the desired setting from the [Image Setup] using [<] [>] [∧] and [∨]**
3	**Press [ENTER] to open the screen for making the setting**
4	**Use [<] or [>] to change the value of the setting**
5	**Press [ENTER] to exit the [MENU]**

Swivel Setup

■ Reversing Pan/Tilt Movement

This allows you to reverse the pan/tilt movement when the cursors [< / > / ∧ / ∨] are pressed.
To reverse left/right movement, set Reverse Pan to ON; to reverse up/down movement, set Reverse Tilt to ON.

■ Limiting the Pan/Tilt Range

It is possible to limit the range that the camera can pan or tilt.
To limit the range it can move, turn the setting ON and then specify the range for each parameter: left and right edges for panning and up/down edges for tilting.
The left and right edges can be set in a range from -100° to +100°, while the top/bottom limits can be set from +70° to -30° [VZ-HD3600/3650/3700A] or +30° to -70° [VZ-HD3780A].

■ Setting the Pan/Tilt Speed

This allows you to set the pan/tilt speed when the cursors [< / > / ∧ / ∨] are pressed.
The speed can be set from mode 1 (slow) to mode 5 (fast).

Caution

The speed may not change even though its setting is, due to the range of movement.

Initial Setup

■ Setting the Output Format (Color System)

VZ-HD3600/3700/3780A

This allows you to configure the image output format.
You can select from between RGB and YPbPr to match the connected monitor.

1 **Press [MENU]**

2 **Select [Initial Setup] ▶ [Color System] ▶ [RGB]/[YPbPr]**

3 **Press [ENTER] to exit the [MENU]**

Caution

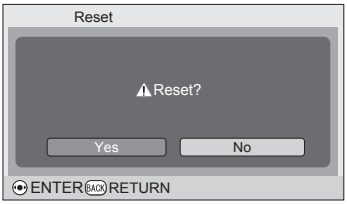
Regardless of the output format setting, the HD-SDI output will be YPbPr.

■ Reverting All Menu Settings to their Initial Setup (Reset)

1 **Press [MENU]**

2 **Press [Initial Setup] ▶ [Reset]**

3 **Press [ENTER]**
The following screen opens.



4 **Use [<] to select [Yes] and press [ENTER]**

Caution

If you reset the settings, all of the presets are lost as well. (P. 35, P. 53)

Troubleshooting

Before requesting repairs, look at the following things. After doing so, if there is still some problem in its operation and you cannot resolve it yourself, please contact the store where you purchased it. Refer to P. 69 for information on after sales service.

	If this Happens	Way to Resolve the Problem	Refer to Page
Power supply	The power won't turn on.	Check and make sure the AC adapter is securely plugged into the DC IN 12V terminal of the camera and that the power cord is plugged into both the AC adapter and the outlet.	P. 22
	The camera is plugged in properly, but it still won't come on.	Has the camera been subject to a severe shock? The camera may be broken. Consult with the store where you purchased it.	—
	When the power is plugged in, the head of the camera moves around at will.	This is not a fault. When the power is plugged in, the head of the camera will first start to move. It then returns to the home position automatically. Do not touch the head of the camera when it is moving.	P. 27
Pan/Tilt	The camera does not pan and/or tilt.	Is there something preventing it from moving? Remove it and turn the power on again.	—
Image Related	No image appears on the connected monitor.	Check and make sure the monitor cable is properly connected: DVI-I cable [VZ-HD3600/3700/3780A] or HD-SDI cable [VZ-HD3650/3700/3780A].	P. 23
	(Cont.)	The video format of the camera OUT has to match the video format of the monitor IN. Check whether the Video Select switch is set correctly.	P. 14

	If this Happens	Way to Resolve the Problem	Refer to Page
Image Related	(Cont.)	HD-SDI output [VZ-HD3650/3700/3780A] is not output at 1080p/59.94 or 1080p/50. Change the Video Select switch and try using a different image output format or use the DVI-I OUT [VZ-HD3700/3780A].	P. 15 P. 25
		Is the input switch of the monitor set correctly? Check and make sure the input is set for the connected DVI-I terminal [VZ-HD3600/3700/3780A] or HD-SDI terminal [VZ-HD3650/3700/3780A].	—
	The outline of the subject is colored.	This is not a fault. The area around the outline of a subject may be colored. Switching to the Program AE Auto mode and changing the aperture limit may improve this.	P. 40
	The subject appears distorted.	This is not a fault. The subject may appear slightly distorted due to the nature of the image sensor (CMOS).	—
	There are horizontal stripes on the screen.	This is not a fault. It may appear this way under artificial lighting.	—
	Bright spots appear on the screen.	This is not a fault. On rare occasions, bright spots may appear on dark subjects.	—
	There is a green stripe on the right side of the screen.	A green stripe may appear on the right side of the screen with some monitors when using an analog video output [VZ-HD3600/3700/3780A]. If this happens, use the monitor's function for adjusting the horizontal position to correct the position of the screen.	—
	Subjects end up looking dark.	When you shoot with a bright object in the background (such as a window, light, the sun, etc.), subjects become dark, so devise a way to shoot so there isn't anything bright in the background, or use backlight compensation.	P. 34

	If this Happens	Way to Resolve the Problem	Refer to Page
Image Related	The brightness of subjects end up changing.	When the brightness of the background changes, the brightness of your subject will also change due to the auto exposure adjustment of the camera.	—
	The area around bright things and the border of dark things end up colored.	This is not a fault. Devise a way to shoot, such as changing the camera orientation, so there is a smaller difference in brightness. Switching to the Program AE Auto mode and changing the aperture limit may improve this.	P. 40
	Images are out of focus. The zoom doesn't work.	Are you trying to shoot a subject that is hard for the autofocus to bring into focus? Try focusing manually.	P. 31
		Is the camera in the manual focus mode? Focus the camera manually or cancel the manual focus mode.	P. 32
		Is there a cell phone or radio nearby? Move it away from the camera and turn the power on again.	P. 44
		If none of the above apply, try turning the power off and back on again.	—
Communication with External Devices	Unable to use external control even when connected to an external device.	Check and make sure the external device is properly connected to the camera.	P. 25
		Make sure the camera is turned on.	P. 25
		Check and make sure that the ①serial communication baud rate and ③RS-232C/RS-422 selections are correct on the System Select switch. If devices are connected in a daisy chain, the positions of the switch above must be the same.	P. 15

	If this Happens	Way to Resolve the Problem	Refer to Page
Remote Control	The remote control doesn't work.	Are you pointing the remote control at the receiver on the camera? Point the remote at the receiver of the camera and then operate it.	P. 12
		Is the receiver on the camera in direct sunlight or under a bright light, such as a fluorescent one? When the receiver is under a bright light, it will not work. Adjust the location and/or the angle of the device.	—
		Are there batteries in the remote control? Check the batteries are facing the right way as well. The batteries may be dead. Replace the batteries.	—
		Is the camera number the same on the camera and the remote control? Set the camera number on the remote control so it is the same as the camera's setting.	P. 17 P. 27
		Is the camera turned on? Turn the camera on.	P. 27

Menu Structure

The camera's menus are structured as follows.

Menu Item (Top Level)	Menu Item (2nd Level)	Setting	Refer to
Camera Functions Setup	Program AE	Auto*	P. 39
		Manual	
		Shutter	
		Iris	
		Spotlight	
		White Board	
	White Balance	Auto*	P. 41
		Manual	
		Set	
		Outdoor	
		Indoor 1	
		Indoor 2	
	Digital Zoom	On	P. 43
		Off*	
Image Setup	Saturation	—	P. 44
	Enhancement		
	Pedestal		
	Gamma		
	NR Setup		

Menu Item (Top Level)	Menu Item (2nd Level)	Setting	Refer to
Swivel Setup	Pan Reverse	On	P. 45
		Off*	
	Tilt Reverse	On	
		Off*	
	Pan Tilt Limit	On	
		Off*	
	Speed Setup	Mode 1	
		Mode 2	
		Mode 3*	
		Mode 4	
		Mode 5	
Initial Setup	Color System [VZ-HD3600/3700/3780A]	RGB*	P. 46
		YPbPr	
	Reset	—	P. 46

* This is the factory default setting.
For information on settings when the camera starts up, refer to “Preset Items and Retained Settings” (P. 53).

Preset Items and Retained Settings

The following table shows the items that can be saved to presets (P. 35) and the settings that are retained in the absence of anything registered to Preset 1.

- When settings have been registered to Preset 1, the camera starts up with the settings of Preset 1.
- When settings have not been registered to Preset 1, the camera starts up using the content of “Startup Settings when no Preset 1 is Registered”.

Items that can be Preset	Startup Settings when no Preset 1 is Registered
Pan Tilt Position	Home position (front)
Zoom Position	Wide end
Exposure: Auto/Manual (Exposure value)	Auto
Focus: Auto/Manual (Focus position)	Auto
BLC (Backlight compensation): On/Off	Off
Program AE Settings (including values for each setting)	Auto (Gain Limit: 30dB Slow Shutter: 59.94/29.97Hz: 1/60 50/25Hz: 1/50 Aperture Limit: F1.8)
White Balance Settings (including values for each setting)	Auto
Digital Zoom	Off
Saturation(Color Level) gain setting value	8
Enhancement setting value	8
Pedestal setting value	40
Gamma setting value	8
NR setting value	3

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That's all there is to it!

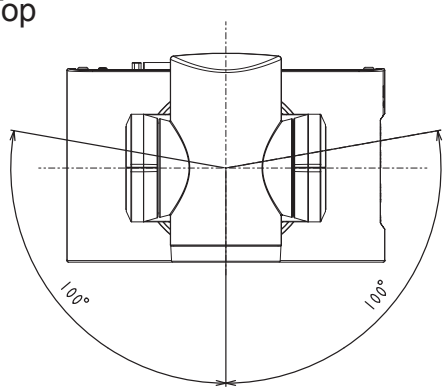
Main Specifications

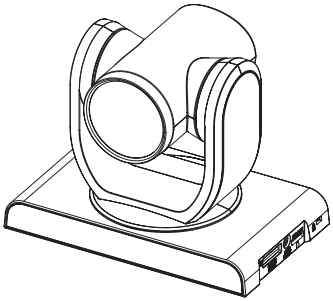
Image Sensor	1/2.8 type CMOS sensor Effective pixels: Approx. 2 megapixel
Lens	F1.8-3.0 f=3.5-35mm, 10x
Video Signal Formats	Switched via the Video Select switch 1080p/59.94*, 1080p/50*, 1080p/29.97, 1080p/25, 1080i/59.94, 1080i/50, 720p/59.94, 720p/50, Serial control *VZ-HD3700/3780A *Note that HD-SDI output is not output at 1080p/59.94 or 1080p/50.
Zoom	Optical 10x, combined with digital 40x
Closest shooting distance	10mm (Wide end), 470mm (Tele end)
Horizontal Angle of View	Approx. 70° at Wide end to 7.8° at Tele end
Minimum Subject Luminance	Auto 15 lux (electronic shutter 1/30)
Shutter Speed	1/15 to 1/10000 sec. (at 1080p/59.94, 1080p/29.97, 1080i/59.94, 720p/59.94) 1/12 to 1/10000 sec. (at 1080p/50, 1080p/25, 1080i/50, 720p/50)
Pan & Tilt Functions	Horizontal ± 100° Vertical +70° to-30° [VZ-HD3600/3650/3700A] +30° to-70° [VZ-HD3780A]
Video OUT Terminals	VZ-HD3600A: DVI-I terminal ×1 VZ-HD3650A: HD-SDI terminal ×1, VZ-HD3700/3780A: DVI-I terminal ×1, HD-SDI terminal ×1
Serial control terminal	RS-232C: 8 -pin miniDIN terminal (IN × 1, OUT × 1) RS-422: connect terminal block, 9 pin
Input Voltage	DC 12V (DC 11.4 to 12.6V)
Current Consumption (at DC12V)	2.5A (max) 1.0A (when pan/tilt stopped)
Allowable Operating Temp (Humid)	0 to 40°C (10 to 85%) , no condensation
Allowable Storage Temp (Humid)	- 20 to + 60°C (10 to 85%)
Dimensions (W×H×D) (Incl. protruding parts)	VZ-HD3600A: Approx. 198 × 152 × 125mm VZ-HD3650/3700A: Approx. 198 × 152 × 132mm VZ-HD3780A: Approx. 198 × 167 × 132mm
Weight	VZ-HD3600/3700/3780A: Approx. 1.6kg VZ-HD3780A: Approx. 2.0kg (Incl. ceiling mount fixture)

* In the interest of improving performance, the specifications of these devices are subject to change without notice.

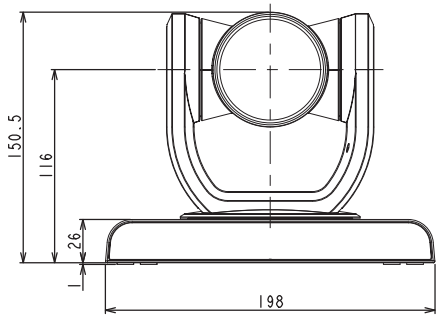
■ Dimensional Drawing VZ-HD3600A

Top





Front



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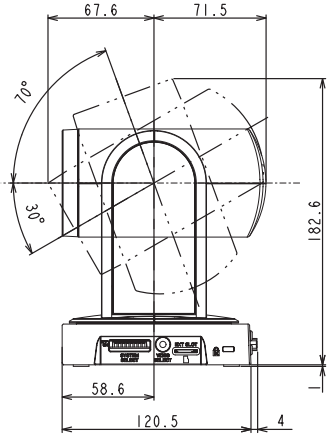

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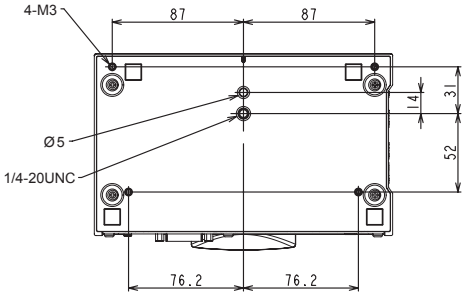
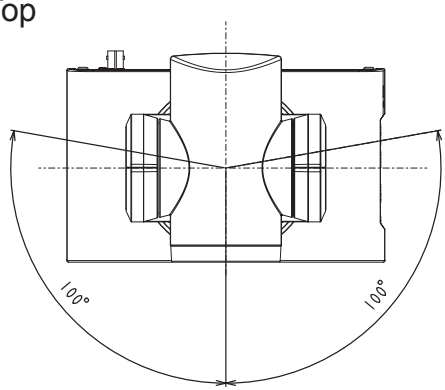
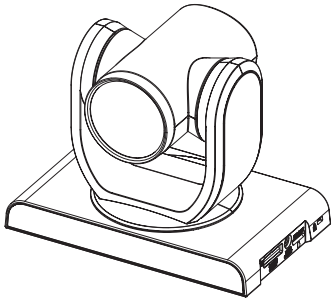


Unit: mm

■ Dimensional Drawing VZ-HD3650A

Top





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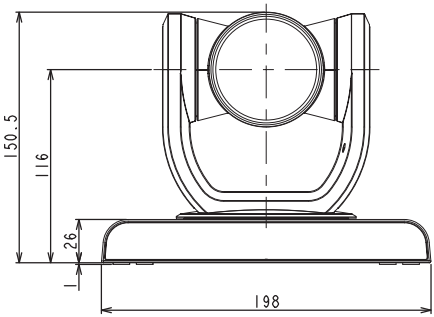

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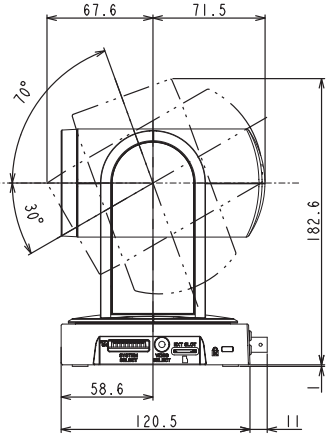

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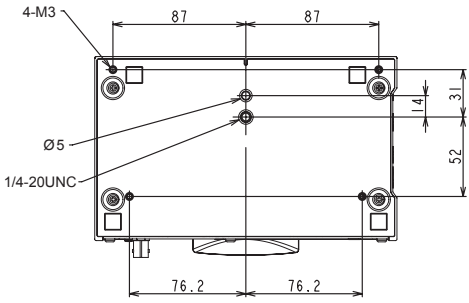
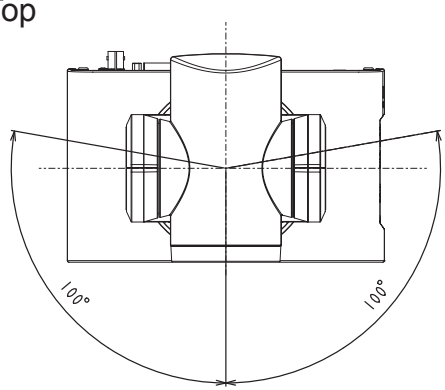
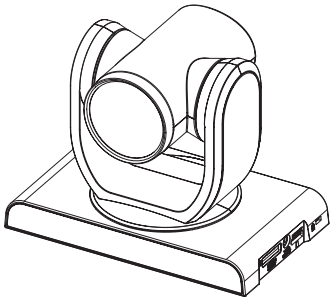


Unit: mm

■ Dimensional Drawing VZ-HD3700A

Top





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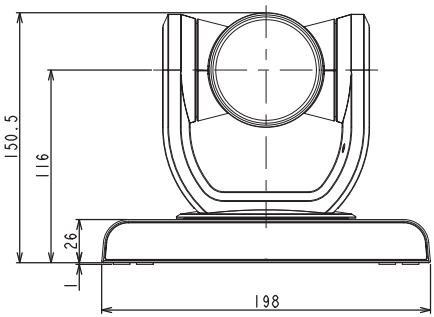

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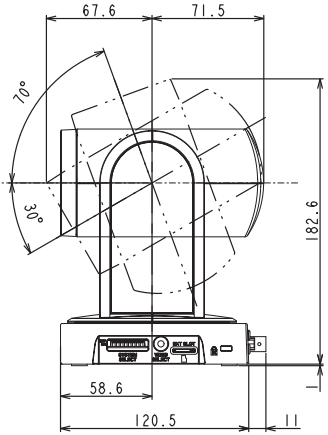

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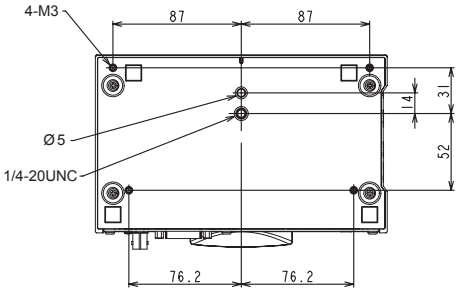
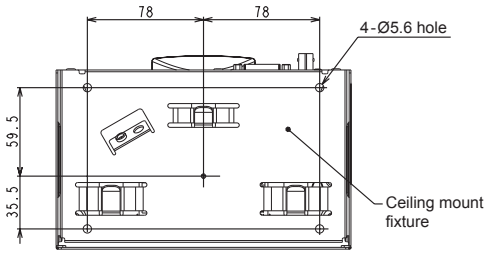
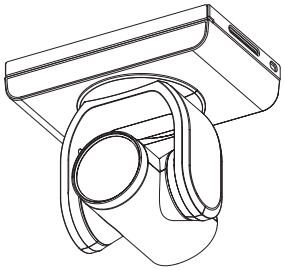


Unit: mm

■ Dimensional Drawing VZ-HD3780A

Base





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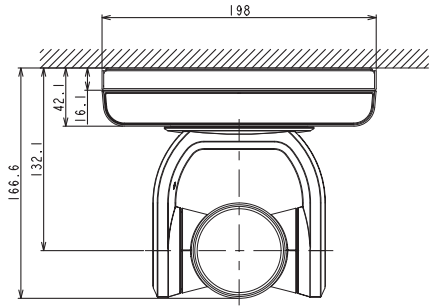

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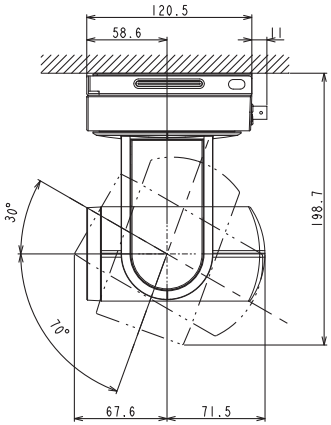
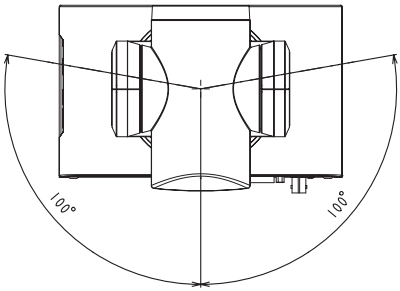


Bottom



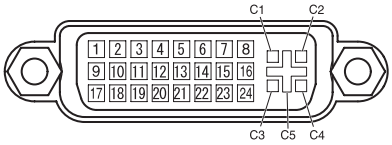
Unit: mm

■ VIDEO OUT (DVI-I) terminal

VZ-HD3600/3700/3780A

(DVI 29 pin)

DVI-I



Pin No	Function
1	TMDS Data 2–
2	TMDS Data 2+
3	TMDS Data 2/4 shield
4	TMDS Data 4– (Not used)
5	TMDS Data 4+ (Not used)
6	DDC clock
7	DDC data
8	Analog Vertical Sync
9	TMDS Data 1–
10	TMDS Data 1+
11	TMDS Data 1/3 shield
12	TMDS Data 3– (Not used)
13	TMDS Data 3+ (Not used)
14	+5V
15	GND
16	Hot Plug Detect
17	TMDS data 0–

Pin No	Function
18	TMDS data 0+
19	TMDS data 0/5 shield
20	TMDS data 5– (Not used)
21	TMDS data 5+ (Not used)
22	TMDS clock shield
23	TMDS clock+
24	TMDS clock–
C1	Analog Red/Pr *
C2	Analog Green/Y *
C3	Analog Blue/Pb *
C4	Analog Horizontal Sync
C5	Analog GND

* The analog video signal of pins C1, C2 and C3 can be switched via Color System from Menu
▶ Initial Setup. (P. 46)

■ RS-232C IN terminal

(8 -pin mini DIN, female)

IN

Pin No	Function
1	DTR IN
2	DSR IN
3	TxD IN
4	GND
5	RxD IN
6	GND
7	IR OUT *
8	Not used

* IR OUT of pin 7 can be switched with the System Select switch. (P. 15)

■ RS-232C OUT terminal

(8 -pin mini DIN, female)

OUT

Pin No	Function
1	DTR OUT
2	DSR OUT
3	TxD OUT
4	GND
5	RxD OUT
6	GND
7	Not used
8	Not used

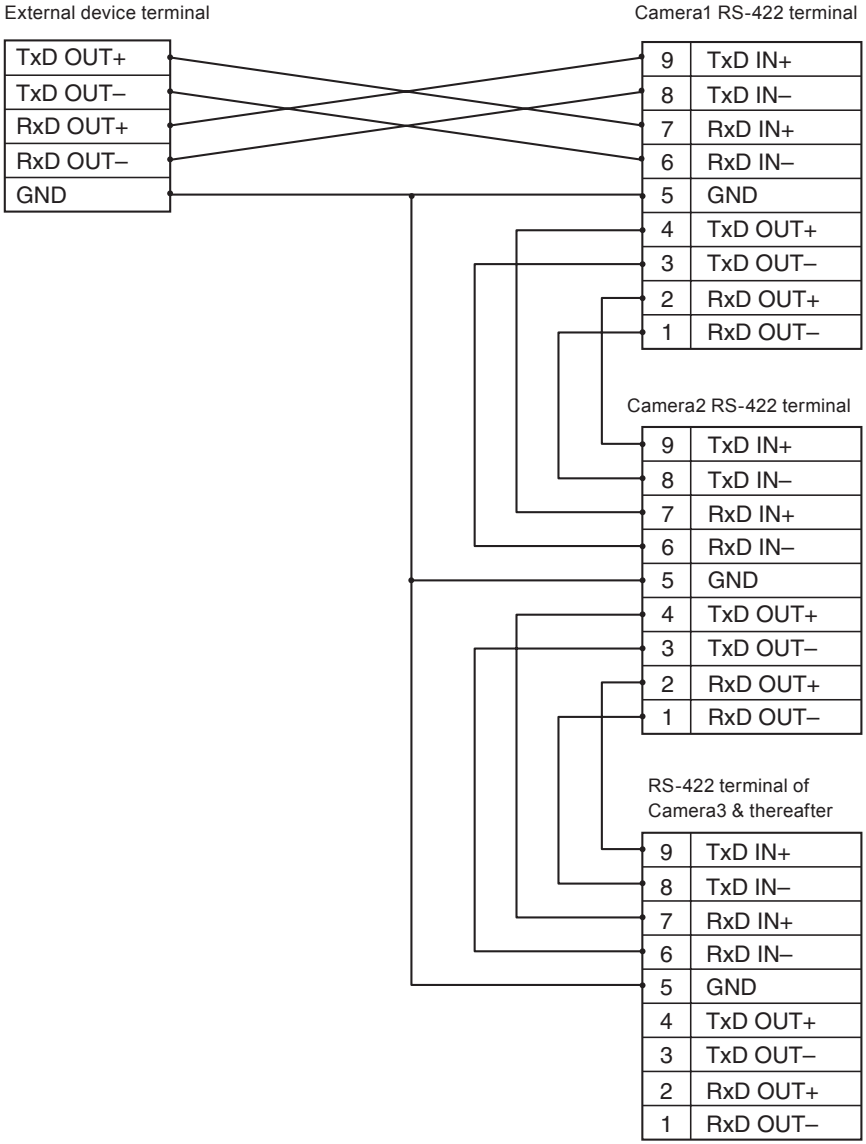
■ RS-422 terminal

(connect terminal block, 9 pin)

RS-422

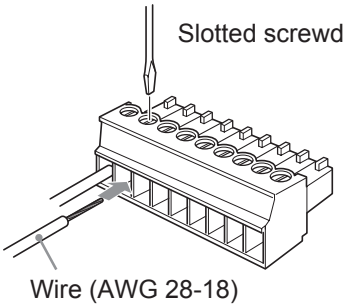
Pin No	Function
1	RxD OUT–
2	RxD OUT+
3	TxD OUT–
4	TxD OUT+
5	GND
6	RxD IN–
7	RxD IN+
8	TxD IN–
9	TxD IN+

■ RS-422 Connection Wiring Diagram

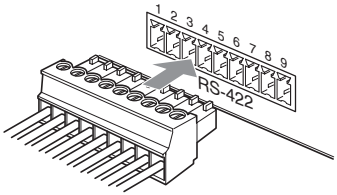


■ Using RS-422 terminal block connectors

1 Insert the wire (AWG 28-18) into the hole you wish to connect and tighten the corresponding screw with a slotted screwdriver.

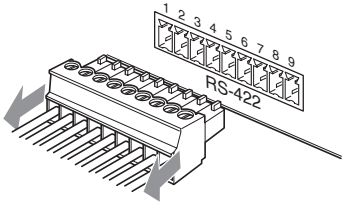


2 Plug the RS-422 terminal block connector into the RS-422 terminal.



When Unplugging Connector Plugs

Grasp both ends of the RS-422 terminal block connector plug and unplug it as shown in the diagram.



Caution

- In order to stabilize the voltage level of signals, cross ground them.
- When connecting via RS-422, connections via RS-232C cannot be made.

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HD Color Video Camera Products

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